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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/961,297	09/25/2001	Nicola Benvenuti	PAT 2689- 2-US	6788
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BORDEN LADNER GERVAIS LLP WORLD EXCHANGE PLAZA 100 QUEEN STREET SUITE 1100 OTTAWA, ON K1P 1J9 CANADA			PHAN, MAN U	
			ART UNIT	PAPER NUMBER
			2616	

DATE MAILED: 07/06/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/961,297

Applicant(s)

BENVENUTI ET AL.

Examiner

Man Phan

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 April 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,5-16,18-30,32 and 33 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 5, 8-16, 18-22, 24-26, 28-30, 32-33 is/are rejected.
- 7) ☒ Claim(s) 6,7,23 and 27 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Response to Amendment and Argument

1. This communication is in response to applicant's 04/20/2006 Amendment in the application of Benvenuti et al. for a "Transparent error count transfer method and apparatus" filed 09/25/2001. This application claims Priority from Provisional Application 60307372 filed 7/25/2001. The proposed amendment to the claims and response have been entered and made of record. Claims 2-4, 17, 31 have been canceled per Applicant's request, claims 1, 8-16, 18, 20-22, 24-26, 28-30 have been amended, and new claims 32-33 have been added. Claims 1, 5-16, 18-30, 32-33 are pending in the present application.

2. Applicant's amendment and argument to the rejected claims are insufficient to distinguish the claimed invention from the cited prior arts or overcome the rejection of said claims under 35 U.S.C. 103 as discussed below. Applicant's argument with respect to the pending claims have been fully considered, but they are not persuasive for at least the following reasons.

3. In response to applicant's argument that the combination of Arao (US#6,667,990) in view of Yamayaki et al. (US#6,487,686) fails to present a prima facie case of obviousness. In response, it has been held that a prior art reference must either be in the field of applicants endeavor or, if not, then be reasonably pertinent to the particular problem with which the applicant was concerned, in order to be relied upon as a basis for rejection of the claimed invention. See *In re Oetiker*, 977 F.2d 1443, 24 USPQ2d 1443 (Fed. Cir. 1992). It is not necessary that a "prima facie" case of unpatentability exist as to the claim in order for "a

substantial new question of patentability” to be present as to the claim. Thus, “a substantial new question of patentability” as to a patent claim could be present even if the examiner would not necessarily reject the claim as either fully anticipated by, or obvious in view of, the prior art patents or printed publications. As to the importance of the difference between “a substantial new question of patentability” and a “prima facie” case of unpatentability see generally *In re Etter*, 756 F.2d 852, 857 n.5, 225 USPQ 1, 4 n.5 (Fed. Cir. 1985). Also, See MPEP § 2141.01(a) for a discussion of analogous and nonanalogous art in the context of establishing a prima facie case of obviousness under 35 U.S.C. 103. See MPEP § 2131.05 for a discussion of analogous and nonanalogous art in the context of 35 U.S.C. 102. 904.02.

Applicant asserts that there is no motivation to combine the prior art as proposed in the office action, Arao (US#6,667,990) in view of Yamayaki et al. (US#6,487,686), i.e. In response, the Examiner recognizes that references cannot be arbitrarily combined and that there must be some reason why one skilled in the art would be motivated to make the proposed combination of primary and secondary references. *In re Nomiya*, 184 USPQ 607 (CCPA 1975). However, there is no requirement that a motivation to make the modification be expressly articulated. The test for combining references is what the combination of disclosures taken as a whole would suggest to one of ordinary skill in the art. *In re McLaughlin*, 170 USPQ 209 (CCPA 1971). It must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant’s disclosure, such a reconstruction is proper. *In re McLaughlin*, 443, F.2d 1392; 170 USPQ 209 (CCPA 1971).

4. Applicant's argument with respect to the rejected claims (pages 16-17) that the cited reference "*fails to show or suggest usage of the B1 and B2 error data*". However, It is widely known in the art that an error occurs in a transmission, and the B1 and B2 bytes are used for monitoring occurrence of errors. In STM-1, for example, an occurrence of an error is monitored based on B1 and B2 bytes contained in a section overhead (SOH) having a size of nine bytes by nine rows. The B1 byte, for example, indicates BIP (Bit Interleave Parity)-8 and is used for detecting a transmission error. It should be noted that values of the B1 and B2 bytes of a frame are obtained based on the data of an immediately succeeding frame (See Yamayaki – Figs. 1, 4 and Col. 1, lines 31 plus). Furthermore, Yamayaki et al. (US#6,487,686) discloses an error correction method in a communication using a frame which comprises a header including control data and a payload including actual data, the method comprising: a step of inserting information on a state of validation or invalidation of an error-correcting function of a transmitter in an unused area of the header (*unused portion of the B1, B2 error data*), which information indicating whether or not an error correction is performed in the transmitter (Col. 2, lines 43 plus). Yamayaki et al. (US#6,487,686) further teaches in FIG. 4 is a diagram showing a format of a frame of STS-192. As shown in FIG. 4, the frame of STS-192 consists of an SOH (section overhead) having a size of 576 bytes by three rows, an LOH (line overhead) having a size of 576 bytes by six rows, and a payload having a size of 16,704 bytes by nine rows. The STS-192 payload includes a POH (path overhead). The SOH and the LOH consist of various kinds of control bytes. The SOH is rewritten at each relay point between sections, and the LOH is terminated at terminal transmission apparatuses. First, a brief description will be given of bytes which relate to the present invention among the above-mentioned control bytes. The B1 and B2

bytes are used for monitoring occurrence of errors, as mentioned above. K1 bytes are used for switching transmission lines between terminal stations. D1 to D3 bytes are data transmission channels between the relay points. D4 to D12 bytes are data transmission channels between terminal stations. Z2 bytes are reserved. In the present invention, check bits are inserted in some of unused bytes of the LOH. Next, a description will be given of a general error correction method prior to a description of the present invention. In the description of the present invention, an FEC is used as an error correction method. The FEC is performed by inserting check bits which are calculated based on the payload of STS-192 in unused K1, D5 and Z2 bytes of the LOH, as shown in Fig. 5. More specifically, as shown in Fig. 6, the FEC is performed with one frame being divided into three groups (GRP1 to GRP3), each of which includes three rows. The GRP1 consists of ninth, first and second rows of the frame, and check bits of the GRP1 are inserted in the unused K1 bytes. The GRP2 consists of third to fifth rows of the frame, and check bits of the GRP2 are inserted in the unused D5 bytes. The GRP3 consists of sixth to eighth rows of the frame, and check bits of the GRP3 are inserted in the Z2 bytes which are reserved. Additionally, each of the GRPs is divided into sixteen blocks, and the error correction is performed for each of the blocks. Since each of the GRPs includes a signal having a size of $16,704 \times 3$ bytes, each of the blocks contains 3,132 bytes. An error-correcting code is generated for these 3,132 bytes and check bits of two bytes are obtained. Thus, the check bits of 32 bytes ($= 2 \text{ bytes} \times 16 \text{ blocks}$) are generated for each of the GRPs. The 32-byte check bits of the GRP1 are inserted in #161 to #192 K1 bytes. Similarly, the check bits of the GRP2 are inserted in #161 to #192 D5 bytes and the check bits of the GRP3 are inserted in #161 to #192

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Z2 bytes (Col. 4, lines 46 plus). Therefore, the Examiner maintains that the references cited and applied in the last office action for the rejection of the claims are maintained in this office action.

Claim Rejections - 35 USC ' 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. Claims 1, 5, 8-16, 19-22, 24-26, 28-30, 32-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Arao (US#6,667,990) in view of Yamayaki et al. (US#6,487,686).

With respect to claims 8, 11, 14, 20, 24, 28 and 30, Arao (US#6,667,990) and Yamayaki et al. (US#6,487,686) disclose a novel system and method for transparent multiplexer/demultiplexer (TMUX) for use with a high speed connection between two points utilizing error counts for each tributary signal being transmitted through the TMUX, according to the essential features of the claims. Arao (US#6,667,990) discloses in Fig. 1 a schematic diagram illustrated an exemplary transmission terminal station apparatus in which a low-order group terminal device is connected through a low-speed line, and a high-order group terminal station device is connected through a high-speed line. The transmission terminal station apparatus includes: (1) a first extraction unit which, when a multi-frame obtained by multiplexing a plurality of frames each having a payload in which data to be transmitted is stored and an overhead in which operation maintenance information of a network is stored is received from the high-order group terminal station device, extracts the operation maintenance information stored in the overhead of the multi-frame; (2) a second extraction unit for extracting detection information serving as information related to the operation maintenance information stored in the overhead of each frame when each frame included in the multi-frame is received by the high-order group terminal station device from each frame included in the multi-frame; (3) a separation unit for separating the multi-frame into a plurality of frames; and (4) a setting unit for inserting new operation maintenance information generated by using information related to the operation maintenance information extracted by the first extraction unit and the detection information extracted by the second extraction unit into the overhead of each frame separated by the separation unit to transmit the operation maintenance information to the low-order group terminal device (Col. 4, lines 30 plus).

However, Arao does not disclose expressly wherein the error count bit is inserted in at least one unused portion of the TOH according to a standard that defines the high speed frame. In the same field of endeavor, Yamayaki et al. (US#6,487,686) teaches a method and system for transporting of the encoded error rate utilizing the unused byte in the overhead (TOH) generated for the transparent multiplexer/demultiplexer (TMUX). Yamayaki et al. (US#6,487,686) discloses an error correction method and a transmission apparatus used in a transmission using a frame including a header and a payload are provided. In the error correction method and the transmission apparatus, a pseudo error is inserted in check bits of the frame to be transmitted. Thus, an error-correcting function of a transmitter and a receiver can be easily tested. A mismatch of a state of validation or invalidation of the error-correcting function between the transmitter and the receiver can be avoided without affecting a main signal by inserting information on whether or not an error correction is performed in an unused area of the header in the transmitter (See Fig. 18 and Col. 2, lines 62 plus).

Regarding claim 18, Yamayaki et al. further teach in Fig. 4 illustrated the structure of a typical standard SONET frame, in which the bytes B1 count and B2 count are available for encoded error counts (Col. 4, lines 45 plus).

Regarding claims 1, 5, 10, 13, 16, 19, 22, 26, they are method claims corresponding to the apparatus claims 8, 11, 14, 20, 24, 28 and 30 above. Therefore, claims 1, 5, 10, 13, 16, 19, 22, 26 are analyzed and rejected as previously discussed with respect to claims 8, 11, 14, 20, 24, 28 and 30.

Regarding claims 12, 15, 21, 25, 29, they are system claims corresponding to the method and apparatus claims above. Therefore, claims 12, 15, 21, 25, 29 are analyzed and rejected as

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previously discussed with respect to claims 1, 5, 10, 13, 16, 19, 22, 26 and 8, 11, 14, 20, 24, 28 and 30.

With respect to claim 32-33, Yamayaki et al. (US#6,487,686) further teaches in FIG. 4 is a diagram showing a format of a frame of STS-192. As shown in FIG. 4, the frame of STS-192 consists of an SOH (section overhead) having a size of 576 bytes by three rows, an LOH (line overhead) having a size of 576 bytes by six rows, and a payload having a size of 16,704 bytes by nine rows. The STS-192 payload includes a POH (path overhead). The SOH and the LOH consist of various kinds of control bytes. The SOH is rewritten at each relay point between sections, and the LOH is terminated at terminal transmission apparatuses (Col. 4, lines 46 plus).

One skilled in the art would have recognized the need for the transparent error count in a TMUX system, and would have applied Yamayaki's teaching of the inserting encoded error counts the unused bytes of successive TMUX messages for transport to a second end of the span into Arao's novel use of code error in TMUX system. Therefore, It would have been obvious to a person of ordinary skill in the art at the time of the invention was made to apply Yamayaki et al.'s error correction method and transmission apparatus into Arao's transmission terminal station apparatus and network system with the motivation being to provide a method and system for transparent multiplexer/demultiplexer (TMUX) for use with a high speed connection between two points utilizing error counts for each tributary signal being transmitted through the TMUX.

Allowable Subject Matter.

8. Claims 6, 7, 23, 27 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is an examiner's statement of reasons for the indication of allowable subject matter: The closest prior art of record fails to disclose or suggest the steps of determining a synchronization status/channel identification bit pattern representative of the indication of synchronization status/channel identifier, and inserting the synchronization status/channel identification bit pattern into the transport overhead for the high-speed frame, where the synchronization status/channel identification bit pattern is inserted in at least one portion of the transport overhead and where the at least one portion is unused according to the standard that defines the high-speed frame. The closest prior art of record fails to disclose or suggest whether receiving an indication of a quantity of errors associated the high speed-frame, and wherein determining the error count quantity is further based on the indication of the quantity of errors associated with high-speed frame, as specifically recited in the claims.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The Denton (US#2003/0198232) is cited to show the multi-stage SONET overhead processing.

The Denton (US#6,580,731) is cited to show the multi-stage SONET overhead processing.

The Brown (US#2002/0120902) is cited to show the method and system for frame synchronous forward error correction.

The Duschatko et al. (US#6,983,414) is cited to show the error insertion circuit for SONET forward error correction.

The Duschatko et al. (US#6,934,305) is cited to show the method and apparatus for detecting errors in a backplane frame.

The Pick et al. (US#6,826,200) is cited to show the combiner/TMUX simulated B1 transparency in fiber optic networks running SONET.

The Taniguchi (US#6,674,771) is cited to show the transmission method and apparatus for transmitting low speed SDH signals using a high speed SDH frame.

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION THIS ACTION IS MADE FINAL**. See MPEP ' 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however,

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will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to M. Phan whose telephone number is (571) 272-3149. The examiner can normally be reached on Mon - Fri from 6:00 to 3:00.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wellington Chin, can be reached on (571) 272-3134. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (571) 272-2600.

12. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have any questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at toll free 1-866-217-9197.

Mphan

07/03/2006.


MAN U. PHAN
PRIMARY EXAMINER